

REMARKS

Claims 85 and 87-122 are pending. Claims 88, 89, 95, 97-101, 104-107 and 110 have been withdrawn. Claim 85 has been amended. Claim 111 has been cancelled. New claim 123 has been added. Support for the claim amendments can be found throughout the specification, in particular, pages 7, 8 and 21, and in the claims as originally filed. No new matter has been added.

Applicants' Response to 35 U.S.C. §103 Rejection over Winter-Jensen

Claims 85, 87, 96, 102, 103, 108, 121 and 122 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over WO 02/32591 to Winter-Jensen et al. (hereinafter "Winter-Jensen").

The Examiner acknowledged that Winter-Jensen fails to disclose a binding entity, but alleged:

...coating the binding entity separately or simultaneously for preparing the non-uniform coated surface, is viewed as routine variation in sequence of processing and as optimization process and which have not been described as critical to the practice of the invention and thus is obvious over the prior art.

(Office Action, at page 4).

Claim 85 has been amended. In particular, a recitation was added to claim 85 to require that the at least one monomer "is polymerisable", "comprises an alkene containing up to 20 carbon atoms" and "has a vapor pressure of at least 6.6×10^{-2} mbar". Support for the amendment can be found on pages 7, 9 and claim 111 of the application, as originally filed.

Winter-Jensen discloses a material with a gradient useful for the separation of organic compounds as well as processes for obtaining the same. Winter-Jensen provides a process for obtaining a sheet-like substrate with a polymer gradient coating by means of polymerization. Winter-Jensen mentions specific monomers that may be useful. However, Applicants

respectfully submit that the combination of at least one monomer that is polymerisable, includes an alkene containing up to 20 carbon atoms and has a vapor pressure of at least 6.6×10^{-2} mbar is not disclosed or suggested in Winter-Jensen. Additionally, Winter-Jensen does not provide any disclosure of a binding entity comprising of carboxyl or an amine functional group coated atop at least part of a plasma polymer deposit. Therefore, Winter-Jensen fails to disclose each and every element of claim 85, as amended herein.

It is respectfully submitted that claims 85, 87, 96, 102, 103, 108, 121 and 122 as amended herein are patentable over Winter-Jensen.

Applicants' Response to 35 U.S.C. §103 Rejection over Winter-Jensen, Chu and Timmons

Claims 90-93, 109 and 112-119 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Winter-Jensen in view of Materials Science and Engineering 2002 to Chu et al. (hereinafter "Chu") and further in view of US 5,876,753 to Timmons et al (hereinafter "Timmons").

The Examiner acknowledged that Winter-Jensen fails to disclose bond formation and binding entities, but alleges that:

...given the fact that plasma polymerization involves covalent interactions among plasma monomers (Chu et al.), one of ordinary skill in the art, from the information of the polymerization process as taught by Chu, would readily appreciate co-polymer formation among the plasma monomers of Winter-Jensen having bonded covalently and since the specification states that binding entity may comprise a chemical function group such as a carboxyl or amine functional group, one of ordinary skill would consider carboxyl containing plasma monomer as binding entity in monomeric mixture for plasma deposition...Further, the derivatization of plasma deposited surface of Winter-Jensen with binding entity such as proteins, nucleic acids, hormones, etc... would be obvious to one of ordinary skill in the art because Winter-Jensen surface is for binding surface is for binding of organic compounds such as proteins and Timmons et al. teach that functionalized plasma polymerized surface can be derivatized with

various binding entities such as proteins, nucleic acids, hormones, etc... to provide solid surface comprising binding entities.

(Office Action, at page 7) (citations omitted).

As stated in detail above, Winter-Jensen fails to disclose each and every element of claim 85 and all that depend therefrom. Chu was merely cited for its discussion of plasma polymerization. Chu is also cited for allegedly disclosing patterned chemistry. The chemistry of Chu is produced by photolithography and oxygen plasma treatment. Nowhere in Chu is it disclosed or suggested to utilize at least one monomer which is polymerisable, includes an alkene containing up to 20 carbon atoms and has a vapor pressure of at least 6.6×10^{-2} mbar, as presently claimed. Similarly, Timmons was merely cited for its disclosure of plasma deposition of specific functional groups. Nowhere in Timmons is it disclosed or suggested to utilize at least one monomer which is polymerisable, includes an alkene containing up to 20 carbon atoms and has a vapor pressure of at least 6.6×10^{-2} mbar. Accordingly, both Chu and Timmons fail to cure the deficiencies of Winter-Jensen.

It is respectfully submitted that claims 90-93, 109 and 112-119 are patentable over Winter-Jensen, alone or in combination with Chu and Timmons.

Applicants' Response to 35 U.S.C. §103 Rejection over Winter-Jensen, Haddow and Uhrich

Claims 94 and 111 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Winter-Jensen in view of WO 03/035850 to Haddow et al. (hereinafter "Haddow") and US 2003/014614 to Uhrich et al (hereinafter "Uhrich"). Claim 111 has been cancelled. The subject matter of claim 111 has been introduced into claim 85.

The Examiner acknowledged that Winter-Jensen fails to disclose binding of cells to a plasma polymerized surface, but alleged that:

...given the fact that plasma polymerized surface is useful for adhering and growth of cells (Haddow et al) and culturing of cells in a pre-selected region (i.e. patterned surface) is very useful and

known in the art (Uhrich et al.), it would be obvious to one of ordinary skill in the art at the time the invention was made to consider providing Winter-Jensen with patterned plasma polymerized surface for adhering cells...

(Office Action, at page 9) (citations omitted).

As stated in detail above, Winter-Jensen fails to disclose each and every element of claim 85 and all that depend therefrom. Haddow was merely cited for disclosure related to adherence and growth of cells and disclosure of vapor pressure. However, nowhere in Haddow is a method that incorporates utilizing at least one monomer which is polymerisable, and includes an alkene containing up to 20 carbon atoms and has a vapor pressure of at least 6.6×10^{-2} mbar to form a plasma polymer deposit, plus having a binding entity comprising of carboxyl or an amine functional group coated atop at least part of a plasma polymer deposit disclosed or suggested. Accordingly, Haddow fails to cure all the deficiencies of Winter-Jensen.

Similarly, Uhrich was merely cited for disclosure related to patterned surfaces. Nowhere in Uhrich is a method of utilizing at least one monomer which is polymerisable, and includes an alkene containing up to 20 carbon atoms and has a vapor pressure of at least 6.6×10^{-2} mbar in the deposition of plasma onto a substrate disclosed or suggested. Accordingly, Uhrich also fails to cure the deficiencies of Winter-Jensen.

It is respectfully submitted that claims 94 and 111 are patentable over Winter-Jensen, alone or in combination with Haddow and Uhrich. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Applicants' Response to Double Patenting Rejection

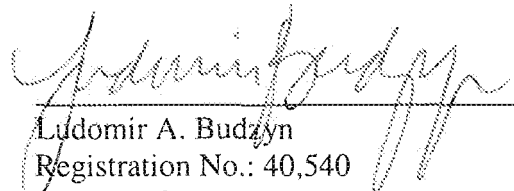
Claims 85-87, 90-94, 96, 102, 103, 108, 109 and 111-122 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 41-77 of copending Application No. 10/509,431 in view of Haddow et al. (WO 03/035850) and Uhrich et al (US 2003/014614). In view of the amendments herein, Applicants request

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reconsideration of this rejection.

Favorable action is earnestly solicited. If there are any questions or if additional information is required, the Examiner is respectfully requested to contact Applicants' attorney at the number listed below.

Respectfully submitted,



Ludomir A. Budzyn
Registration No.: 40,540
Attorney for Applicants

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York 11791
(973) 331-1700